

REMARKS

This is in response to the Office Action dated August 9, 2005. New claims 16-19 have been added. Thus, claims 12 and 14-19 are now pending. Example support for new claim 16 may be found at Figs. 3 and 6 (e.g., see reference numeral 2 on the left side of the drawings). Example support for new claim 17 is the same as that for the previous now-deleted last paragraph of claim 12. Example support for new claim 18 may be found based on the relationship between the bottom end of gas lines 6, 8, 9 and the bottom end of the partition 10 shown in Fig. 3. Example support for new claim 19 may be found based on the relationship between the bottom end of gas lines 6, 8, 9 and the bottom end of the partition 10 in Fig. 3.

Formalities

Certain subject matter has been deleted from claim 12 (i.e., partition means, etc.), and all previous arguments relating to this subject matter are hereby expressly withdrawn as to claim 12 since this subject matter is no longer present in claim 12.

In section 2 of the Office Action, the square symbol stands objected to. This formality objection is respectfully traversed. In particular, the square symbol means square. Sheet resistance is measured in units of ohms/square, and this is well known to those of skill in the art. Those of ordinary skill in the art typically use " Ω/\square " as a representation of ohms/square. The instant specification does this. Certainly, *the instant specification at page 3, line 7, clearly states that \square means square* as is known in the art. As another example, U.S. Patent No. 5,422,299 at col. 25, lines 15-16, shows that those of skill in the art know that " Ω/\square " is a unit of sheet resistance and means ohms/square. In view of the above, it is clear that " Ω/\square " is a unit of sheet resistance meaning ohms/square, and that the formality objection to the specification should be withdrawn.

Claim 12 stands rejected under Section 112, first paragraph, in sections 3-4 of the Office Action. This Section 112 rejection has been addressed and overcome. In particular, claim 12 has been amended to make abundantly clear that "direction" in the claim is referring to how the substrate is moved – not to a temperature gradient.

Art Rejection

Claim 12 stands rejected under 35 U.S.C. Section 103(a) as being allegedly unpatentable over Oda in view of Ellis. This Section 103(a) rejection is respectfully traversed for at least the following reasons.

Claim 12 as amended requires forming a film on (directly or indirectly) a substrate continuously in an open system by chemical vapor deposition under atmospheric pressure. E.g., see pg. 22, lines 7-10, and Figs. 3-6. Thus, claim 12 calls for an apparatus for forming a film (1) continuously, (2) in an open system, (3) by a CVD technique, and (4) under atmospheric pressure. Moreover, the invention of claim 12 has a means for pre-heating a substrate and a means for conveying.

First, Oda in Figs. 1-11 discloses a substrate on which a film is formed, where the substrate is fixed. Thus, Oda does not relate to a system or apparatus that forms a film "continuously" as required by claim 12.

Second, Oda relates to a closed system (not an "open" system as required by claim 12). In particular, Oda in Figs. 1-11 does not have an opening other than a material gas supply port and a material gas discharge port, thereby evidencing that Oda relates to a closed system (the opposite of the "open" system of claim 12). With the closed system apparatus of Oda, the film quality is not affected by change in an atmosphere surrounding the apparatus. On the other hand, the apparatus of claim 12 and Ellis have openings in a substrate introduction port and a substrate

ejection port other than a material gas supply port and discharge port, thereby relating to an open system. In an open-system apparatus, a material gas is diluted because the material gas is mixed with an atmosphere surrounding the apparatus before it reaches the substrate. The film quality changes if the composition of the atmosphere changes. To suppress this problem with open systems, claim 12 requires means for positioning a bottom end of a discharge port of a former dispersion head closer to a surface of the substrate than is a bottom end of a discharge port of a latter dispersion head.

In other words, Oda relates to a closed-system, non-continuous film-forming apparatus, whereas claim 12 relates to an open system, continuous film-forming apparatus. With the open system apparatus, the composition, flow rate and the like of a material gas needs to be controlled in views of the effect of the atmosphere, while with the closed system of Oda there is no need for controlling a material gas as it is not affected by the atmosphere. Thus, there is no reason why one of ordinary skill in the art would have ever modified the system of Oda to meet the invention of claim 12. There is clearly no suggestion or motivation for such a modification, and hindsight is not permitted.

Third, claim 12 requires means for pre-heating the substrate. Oda and Ellis fail to disclose or suggest this feature of claim 12, as they have no means for pre-heating a substrate before or during the film formation.

For each of the above reasons, it is respectfully requested that the art rejection of claim 12 be withdrawn.

New claim 16 requires "means for a second pre-heating of the heated substrate *after* the film is deposited." E.g., see reference numeral 2 in Figs. 3 and 6. Oda and Ellis fail to disclose or suggest this feature of claim 16.

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All rejections should be withdrawn. All claims are in condition for allowance. If any minor matter remains to be resolved, the Examiner is invited to telephone the undersigned with regard to the same.

Respectfully submitted,

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